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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,678	11/24/2003	Ken Matsumoto	00862.023319	1255

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EXAMINER

DOTY, HEATHER ANNE

ART UNIT PAPER NUMBER

2813

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/718,678	Applicant(s) MATSUMOTO	
	Examiner Heather A. Doty	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15, 17-20 and 22 is/are allowed.
- 6) ☒ Claim(s) 1, 4, 8-10, 16 and 21 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 5-7 and 11-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/21/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaaki (JP 11-109606).

Regarding claim 1, Masaaki teaches a transport apparatus which has a transport hand (10) and holds and transports a mask (reticle, 20) with a pellicle (22) by said transport hand, wherein said transport hand comprises a gas injector (5,6) arranged to inject a gas to at least a portion of a periphery of a pellicle support frame (21) of the mask with the pellicle (see abstract and paragraphs 0018-0020).

Regarding claims 9 and 10, Masaaki teaches that the reticle transport apparatus carries out blow washing (paragraph 0012), which is defined by blowing nitrogen, an inert gas, on the reticle and pellicle to remove dust (paragraph 0003).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki (JP 11-109606) in view of Hitoshi (JP 05-114540).

Masaaki teaches the apparatus according to claim 1 (note 35 U.S.C. 102(b) rejection above), but does not teach that the transport hand further comprises a gas sucking section.

Hitoshi teaches a reticle transport apparatus that has air jetting ports (15) and air sucking ports (16), which prevent dust from adhering to the reticle while it is transported (abstract).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the reticle transport apparatus taught by Masaaki by adding a gas sucking section, as taught by Hitoshi. The motivation for doing so at the time of the invention would have been to prevent dust from adhering to the reticle while it is transported, as taught by Hitoshi.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki (JP 11-109606) in view of Friedman et al. (U.S. 6,619,903).

Masaaki teaches the apparatus according to claim 1, but does not teach that the transport hand further comprises a cover with which a periphery of a pellicle structure of the mask with the pellicle is covered while holding the master with the pellicle.

Friedman et al. teaches a method of transporting a reticle with attached pellicle using a transfer arm enclosed in an outer chamber (Fig. 2) with a seal (117 in Fig. 1) to

prevent contaminants from entering into the region surrounding the reticle and pellicle (column 4, lines 21-26).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the apparatus taught by Masaaki by covering the transport arm and reticle and pellicle, as taught by Friedman et al. The motivation for doing so at the time of the invention would have been to prevent contaminants from entering the region surrounding the reticle and pellicle, as taught by Friedman et al.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (U.S. 2001/0026355) in view of Masaaki (JP 11/109606).

Aoki et al. teaches a device manufacturing apparatus comprising an exposure section (10 in Fig. 1; paragraphs 54 and 55) that transfers a pattern onto a substrate using a mask with a pellicle, which is transported by a transport apparatus, but does not teach the transport apparatus as defined in claim 1.

Masaaki teaches the transport apparatus as defined in claim 1 (note 35 U.S.C. 102(b) rejection above).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the device manufacturing apparatus taught by Aoki et al. by using the transport arm taught by Masaaki to transport the reticle and pellicle between the reticle library (RL in Fig. 1) and the exposure section (10 in Fig. 1). The motivation for doing so at the time of the invention would have been to prevent the adhesion of dust onto the reticle and pellicle during transportation of the reticle and pellicle, as expressly taught by Masakki (abstract).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (U.S. 2001/0026355) in view of Masaaki (JP 11/109606) as applied to claim 16 above, and further in view of Wolf et al. (Silicon Processing for the VLSI Era, Vol. 1).

Together Aoki et al. and Masaaki teach the device manufacturing apparatus as defined in claim 16. Aoki et al. teaches using such an apparatus to perform photolithography, which includes a step of transferring a pattern onto a substrate coated with a photosensitive agent (paragraph 4). Aoki et al. and Masaaki et al. do not expressly teach a step of developing the substrate.

Wolf et al. teaches that following exposure, a resist film (photosensitive agent) must undergo development to turn the latent image in the resist into the final resist image (pg. 527, last paragraph).

Therefore, at the time of the invention, it would have been obvious to append to the device manufacturing method taught by Aoki et al. and Masaaki the step of developing the substrate because it is a critical step in the photolithography process, as taught by Wolf (pg. 527, last paragraph).

Allowable Subject Matter

Claims 2, 3, 5-7, and 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15, 17-20, and 22 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Prior art does not teach or suggest a transport apparatus that has a transport hand arranged to inject a gas into a pellicle space. Prior art suggests that it is well known to pressurize or purge the space between a reticle and pellicle within an exposure apparatus. For example, see co-assigned U.S. patent 6,788,392 to Nakano, which teaches an exposure apparatus that includes a support for holding a pellicle-equipped reticle and a nozzle disposed in an opposed relation to the opening formed in the pellicle frame held on the support, and used to inject an inert gas into the pellicle space. See also U.S. 2001/0026355 to Aoki et al., which teaches an exposure apparatus including a gas replacement chamber, used to replace gas in the pellicle space. However, prior art does not teach or suggest purging or pressurizing the pellicle space while the reticle and pellicle are transported, via gas injectors provided on a reticle transport hand. Prior art also does not teach or suggest a transport apparatus comprising a closing mechanism that closes a pellicle vent hole while holding the reticle and pellicle.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather A. Doty, whose telephone number is 571-272-8429. The examiner can normally be reached on M-F, 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached at 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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ERIK KIELIN
PRIMARY EXAMINER